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from Costa Rica

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A NEW SPECIES OF *PLATYTHYREA*
(HYMENOPTERA; FORMICIDAE) FROM COSTA RICA¹

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A new species of *Platythyrea* was found in the Field Museum insect collections too late to be included in Brown's (1975) revision of the genus. Eleven workers were collected by Dr. John Wagner and Dr. John Kethley from berlesates at the La Selva Field Station of the Organization for Tropical Studies in Costa Rica. A formal description is offered herewith. Measurements are as defined in Brown (1975:3).

***Platythyrea prizo* n.sp.**
(Figs. 1-3)

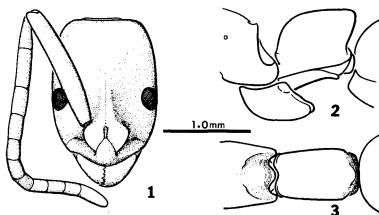
Holotype worker: TL 7.54, HL 1.68, HW (behind eyes) 1.21 (CI 72), greatest diameter of eye 0.31, W across frontal lobes 0.28, scape L 1.50, ML 0.25, WL 2.66, forefemur L 1.60, forefemur maximum W 0.42 (W/L 26%), petiolar node dorsal view L 0.88, W 0.60 mm.

Paratype workers: (10 from berlesate) All very close in size. Smallest and largest workers: HL 1.64, 1.72; HW 1.15, 1.23 (CI 70, 71.5); ML 0.23, 0.23; scape L 1.40, 1.47; greatest diameter of eye 3.0, 3.1; WL 2.58, 2.70 mm. At least one worker has 11, rather than 10 teeth on the mandible. Two ants from the same collection have 1-2 vestigial ocelli. Otherwise I detect no variation in sculpture, color or shape (aside from 1 callow worker).

Mandibles (fig. 1) subtriangular, outer border straight at mid-length, gently convex at each end; masticatory border with large apical tooth and 9 smaller teeth, larger and smaller teeth alternating, but the series as a whole decreasing in size toward the basal border. A fine sulcus runs over the dorsal mandibular surface from near

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Figs. 1-3. *Platythrea prizo* n. sp., worker. Fig. 1, head and right antenna in full-face dorsal view. Fig. 2, petiole and adjacent structures, side view. Fig. 3, same, dorsal view.

the articulation anteroventrad to the outer border. Palpal formula 4,4; all palpi short and slender, do not reach posteromedial rim of buccal cavity. Head (fig. 1) moderately long, sides gently convex, parallel. Posterior border of head weakly convex in full face dorsal view. The frontal lobes are approximated, their fused carinae trailing caudad as a prominent rounded ridge that blends into the curvature of the mid-vertex. Frontal triangle reduced to clearly defined narrow cuneiform depression surrounded by frontal lobes. Frontal sulcus, a fine impressed line antieriad but effaced caudad, continues to within 0.30 mm of back of head. Middle of clypeus broadly swollen; free clypeal margin arcuate with a narrow apron. Posterior clypeal border separated from frontal lobes by distinct V-shaped sulcus. Eyes suboval, only slightly convex; on dorso-lateral surface of head slightly anterior to midlength (anterior edge of eye 0.30 mm from mandibular insertion). Eye covered with extremely fine short erect pubescence.

Antennae long and slender. In full face view scape extends beyond occiput by 0.30 mm, when held straight back. Length of first 3 funicular segments 0.34, 0.43, 0.30 mm. Segments 2-10 regularly decrease in length to 0.20 mm. Apical segment flattened, narrowly rounded, length 0.40 mm. Funicular segments vary little in width; all about 0.16 mm.

Pronotum seen from full dorsal view with anterior surface (above neck) and humeri evenly and broadly rounded; sides gradually become less convex and converge as they continue caudad; slightly concave where they overlap the mesopleura. Posterior edge of pronotum forming a broad U with gently divergent arms. Promesonotal suture impressed and probably flexible. Remainder of trunk seen from above with parallel sides, narrower than pronotum (maximum pronotal W 1.06 mm, maximum propodeal W 0.78 mm). Slight impressions in the sides are evident at the promesonotal suture, and somewhat more distinctly at the level of the metathoracic spiracles. Declivity of propodeum shallowly concave from above. In side view the dorsal profiles of mesonotum and propodeum are flat for the most part, but gently convex at each end and with broad feeble impressions fore and aft of the metaspiracle. Pronotal dorsum tilted ventrad from mesonotum; dorsal profile gently convex, meets nearly vertical anterior face in broadly rounded corner. Sides of pronotum are inclined dorsomesad and insensibly merge with dorsum, except near promesonotal suture where there is a distinct corner. At this juncture the ventral edge of the pronotum is strongly impressed mesad (around procoxal articulations) and the sides become inclined slightly dorsolaterad. The mesopleuron in side view is subtrapezoidal and clearly outlined by concave sutures (weaker along dorsal edge). Metapleuron indicated by vague sulcus running from dorsal edge of a deep pit behind metaspiracle to ventral edge of propodeal spiracle and dorsal edge of metapleural gland. Metapleural gland bulla not enlarged, meatus partially occluded by dense appressed hairs. Opening of propodeal spiracle circular. Dorsum of propodeum broadly curved into declivity, but the curve interrupted on each side by a short tooth (fig. 2). Lateral margins of declivity concave in side view, sharp only along dorsal half. From behind, the declivity is subtriangular, concave (fig. 3).

Legs long and slender. Forefemur only slightly incrassate (W/L 26%). Hind femur L 1.80 mm (W/L 20%). Hind tibia L 1.55 mm. Oblique conical setae on flexor surfaces of tarsi sparse and minute. Middle teeth of tarsal claws very small and difficult to see. Middle and hind tibiae with paired spurs, lateral spurs slightly shorter. All spurs pectinate. Flexor surface of proximal end of basitarsus of hind leg with weak depression opposite tibial spurs.

Petiolar node as in Figs. 2 and 3. Seen from the side, the anterior and posterior surfaces are subparallel, anterior surface shorter, curving broadly into dorsal surface. Dorsal profile gently convex; posterodorsal corner distinct, narrowly rounded, unarmed. Posterior outline in perfect profile gently convex, but face slightly concave. In dorsal view, node distinctly longer than wide (maximum W/maximum L 0.64). Base of node at anterior end square and narrower (0.50 mm); sides weakly convex and diverging slightly to 64% of length, then curving mesad. Viewed from the front, sides of node convex, widest at midheight, smoothly joining convex dorsal surface except near posterior edge, where juncture is slightly angular.

Dorsum of postpetiole wider than long (L 0.90 mm, W 1.12 mm), evenly rounded anteriorly in both directions (figs. 2 and 3). Acrotergite of second gastric segment with narrowly triangular stridulatory file. Sternum of postpetiole truncate in front, underhanging insertion. Tergum of second gastric segment longer than broad (L from apex of file 1.30 mm, W 1.15 mm), and much longer than sternum (L excluding acrosternite 0.40 mm). Gaster bent strongly ventrad at this segment. Gaster markedly constricted in both views between postpetiole and second segment. Pygidium very convex dorsad and caudad, apex of ventral edge subacute. Sting well developed.

The whole body has the usual pruinosity, and dense, finely reticulate-punctate ground sculpture. Superimposed larger punctures are scattered over most of the head, trunk, petiole, and first 2 gastric segments; they are coarser on the petiole, anterior ends of meso- and metapleura, and posterodorsal corners of propodeum. These superimposed punctures are smaller and more numerous than in most *Platythrea* species. Fine transverse rugules present on lower half of declivity of propodeum. Erect hairs on masticatory borders of mandibles, anterior edge of clypeus, posterior surface of first coxae, pygidium, and hypopygium. Very short, sparse, fine oblique hairs seen on gaster in some lightings.

Head, trunk, petiole, and gaster dully shining, uniformly dark reddish brown; appearing black to naked eye. Legs, antennae and mandibles lighter, castaneous brown. Appendages get lighter and yellower more distad so that terminal tarsomeres and antennomeres are bright yellow gold. Frontal lobes rimmed with black, and frontal depression darker than surrounding frontal lobes.

Queen and male unknown.

Holotype and paratypes from La Selva Field Station (Heredia Province) Sarapiquí District, Costa Rica, 10°26' N - 83°59' W, on the Rio Puerto Viejo. Collected by J. Wagner and J. Kethley. Field Museum collection #73-292, taken from 100 cc of berlesate of light brown duff from root mat around grass-like plant (8 workers); #73-299, from 100 cc of berlesate of root duff from epiphytic garden (2 workers); #73-295, from berlesate of buttress duff with soil, El Sura trail (1 worker). Holotype and 4 paratypes in the Field Museum, Chicago; remaining paratypes in Museum of Comparative Zoology, Cambridge, Massachusetts; British Museum (Natural History), London; and W. W. Kempf collection, Brasilia.

In comparison with other neotropical species, *P. prizo* is more slender, especially in its appendages (pronotal W/hind femur L of smallest worker 0.60, or largest worker 0.59), and it is the only known New World species with toothed mandibles. It bears some affinity to *P. zodion* in shape of the petiolar node and trunk, but differs in much larger body size and in conformation of the head (Brown 1975, figs. 34-36).

P. prizo appears to belong to the *clypeata* group (see Brown, 1975:50-52; Forel, 1911:378-379; and Wheeler, 1922:59-60), which until now included only Old World species. It has a similar frontal lobe structure, mandible shape, dentition, trunk shape, and the same palpal formula as this group. The petiolar node is most similar to that of *P. clypeata* (see Brown, figs. 23 and 24), but the posterior face in *P. prizo* is not so strongly concave, nor is the posterodorsal edge emarginate; the subpetiolar process is more like that of *P. gracillima* (see Brown, fig. 29). *P. clypeata* is also smaller (WL 2.30 mm), with an unarmed propodeum. *P. prizo* differs even more from *P. gracillima* and *P. bidentata*.

Prizo is a form of the Greek verb meaning "to saw". It is used here arbitrarily as a noun in apposition, in reference to the serrate mandibles that clearly separate this species from other New World *Platythyrea*.

Note on *Platythyrea strenua*: This species was described by Wheeler and Mann (1914, Bull. Am. Mus. Nat. Hist. 33: 6-7, fig.1) from material taken in a rotten log at Diquini, Haiti. No further records are known until two collections were made on the Sierra de Baoruco, Prov. Pedernales, Republica Dominicana during

February 1975 by W. L. and D. E. Brown. The collections were both made from small colonies found under limestone slabs in pine forest (*Pinus occidentalis*) with some form of everlasting prominent in the understorey (*Gnaphalium* or a related species in Compositae: Inuleae) along the road from Cabo Rojo to the Alcoa bauxite mines. The first collection was made at Km 28, elevation about 1200 m, and the second at Km 33 (1500 m). Although special attention was paid to the rotten wood microhabitat in 3 weeks of intensive collecting all over the Dominican Republic, no *P. strenua* were found anywhere else in the country.

REFERENCES

- BROWN, W. L.
1975. Contributions toward a reclassification of the Formicidae. V. Ponerinae, tribes Platythyreini, Cerapachyini, Cyldromyrmecini, Acanthostichini, and Aenictogitini. Search, Agriculture, Cornell Univ., 5(1): 1-116.
- FOREL, A.
1911. Fourmis nouvelles ou intéressantes. Bull. Soc. Vaud. Sci. Natur., 47: 331-400.
- WHEELER, W. M.
1922. The ants collected by the American Museum Congo Expedition. Bull. Amer. Mus. Natur. Hist., 45: 39-269, pl. 2-23.